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AGDA (M) (5 Jun 70)

FOR OT UT 701121

9 June 1970

SUBJECT: Operational Report - Lessons Learned, Headquarters, 589th Engineer Battalion, Period Ending 31 January 1970


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DEPARTMENT OF THE ARMY
HEADQUARTERS, 589TH ENGINEER BATTALION (CONSTRUCTION)
APO SAN FRANCISCO 96321

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31 January 1970

SUBJECT: Operational Report - Lessons Learned, 589th Engineer Battalion
(Construction), Period Ending 31 January 1970, RCS CSFOR-65 (R2)

THRU: Commanding Officer
35th Engineer Group (Const)
ATTN: EGA-3
APO 96312

Commanding General
18th Engineer Brigade
ATTN: AVBC-O
APO 96377

Commanding General
United States Army, Vietnam
ATTN: AVHGC-DST
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Commander in Chief
United States Army, Pacific
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1. SECTION 1, OPERATIONAL Significant Activities

a. Headquarters and Headquarters Company (HHC)

(1) The company performed its normal mission of providing support to the battalion headquarters during the period of this report. Training was confined to the battalion master training schedule. Special classes were scheduled and conducted as task assignments dictated.

(2) The Utilities section continued to improve the living conditions in the battalion area by performing light construction and minor repairs. All revetments in the company area were repaired and refilled with sand. Crossbracing was strengthened in bunkers and siding was repaired in revetments around billets.

(3) The water points at Song Pha (Co C, 589th), Song Mao (2/1 Armored Cavalry and 5/27 Artillery), and Phu Quy (Co D, 589th) produced 368,000, 272,000 and 115,000 gallons of water, respectively, during the report period.

b. Company A

(1) There was only one change in the company's normal mission of providing equipment support, maintenance support and crushed rock for battalion operations during the report period: the battalion asphaltic concrete paving capability was gradually absorbed into the company's organic framework. All personnel and equipment peculiar to the paving train (with the exception of the 1000 gallon water distributor which is the property of the 547th Engineer Platoon) were permanently assigned to Company A. The DYNALLECTRON civilian contract personnel continued to provide support maintenance for the MCL equipment.

(2) The company paved 15.7 km, double lane, utilizing 17,363 tons of asphaltic concrete (1.6 km of this was placed on an ammunition haul road for Cam Ranh Bay Support Group and utilizing 1909 tons of asphaltic concrete). The remainder was placed on QL-11.

(3) The SA 35 paver which belongs to the 51st Engineer Platoon (Asphalt) was returned to them on 26 November 1969 with their 1000 gallon water distributor. The present paver which belongs to the 547th Engineer Platoon was modified by replacing its gasoline engine with a two cylinder, 2 cycle diesel engine. This paver was successfully placed in operation on 3 December 1969. A 2 1/2 ton truck was fitted with a tank, filter and pumping system to provide water for the compaction equipment. Both modified pieces of equipment have performed satisfactorily.

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(4) A total amount of 77,540 cy of rock was crushed during the report period. Base course (57,199 cy) accounted for 74%; asphaltic concrete coarse aggregate (11,784 cy), 1" (-), accounted for 15%; and asphaltic concrete "fines" (8,527 cy), $\frac{1}{2}$ " (-), accounted for 11%. The present crushing plant set-up is not able to produce $\frac{1}{2}$ " (-) rock at the rate required to support desired asphaltic concrete production. Measures are being investigated which will increase the percentage of $\frac{1}{2}$ " (-) rock.

(5) Maintenance problems curbed production during the report period. Four days were required to replace the engine on the primary jaw crusher. Time was also consumed in replacing conveyor engines, making clutch adjustments and performing maintenance on the power take off of the 54 unit.

(6) Equipment support to the battalion from the company declined sharply during the period because of equipment lost through ARVN (Army of South Vietnam) transfers and redistribution of assets due to shortages. The GRADALL (hydraulic controlled backhoe), 3 transit mix trucks and the rough terrain 20 ton crane were used extensively by support units.

(7) The direct support maintenance platoon received 260 job orders during the period. Of these, 242 were completed, 16 were open and 2 were deferred at period's end. Engines for 440 H₂ graders, 290 M tractors, 10 ton tractors and D7E dozers continued to be critical items. Other smaller items which adversely affected maintenance operations during the period were 10 ton tractor clutches and filter inserts. The lack of repair parts for the Euclid 20T dump trucks hampered maintenance of those critical items.

(8) Authorized stockage list (ASL) due out items numbered 525 (13%). Fringe items on hand numbered 2653 over and above the 4000 authorized items. "Red Balls" (express requisitioning system) totaled 98, a 50% decrease over last period. Eighty were filled, ten were due out and eight were cancelled.

c. Company B

(1) During the report period, the company completed the construction of its portion of Highway QL-11 from Phan Rang to bridge 16, a distance of 26 kilometers, including bridges 7 and 9, and prepared for its impending relocation to Vinh Hao (69 km from Phan Rang on highway QL-1 at grid coordinates EN534472). Culverts 8 and 15 were repaired and a 1.6 km fair weather access road was built in support of the ROK Army. The quarry platoon from the 73rd Engineer Company (Construction Support) was assigned to operate the 250 TPH rock crusher which will be installed at the Vinh Hao quarry site. Both the crushing plant and the personnel were

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received during the period. Civic action work and site development at the company's future base camp location consumed the remaining time during the report period.

(2) The completion of their assigned section of QL-11 required 10,553 manhours, 5565 equipment hours, 57,894 cy of subbase fill and 25,572 cy of base course. Bridges 7 and 9 are each two-span 80 ft structures with reinforced concrete abutments and center piers, steel stringers, and timber decking. A total of 157 cy of concrete was utilized to complete the two bridges. Other vertical work involved the replacement of 48" diameter corrugated metal pipe (CMP) culvert 48 ft long and the rebuilding of the downstream, reinforced concrete headwall at culvert 8 (two 72" tubes of CMP). These two jobs required 25 cy of concrete. All horizontal and vertical construction for this section was completed near the end of December and the road was accepted by the Republic of Vietnam Ministry of Public Works on 12 January 1970.

(3) Company B was directed to build a fair weather access road up a mountainside to a Republic of Korea army fire base. The construction required 200 cy of base course, 650 equipment hours and 1180 manhours, and was completed on 20 December 1969.

(4) The quarry platoon of the 73d Engineer Company (CS) arrived on 9 November 1969 with one officer, 2 NCO's and 24 EM. The platoon is led by 1LT Gary Woodard. The platoon's first mission was to receive, deprocess and prepare a Cedar Rapids 250 TPH rock crushing plant for shipment to Vinh Hao. The plant is civilian model, MCA purchased, and is programmed to produce aggregate requirements for upgrade of highway QL-1.

(5) Effort on combat and operational support type projects during the period required 483 equipment hours and 1427 manhours. This effort was expended for the 2/1 Armored Cavalry Squadron and 5/27 Artillery Battalion to improve their living conditions.

(6) B Company did more than its share of building better US-Vietnamese relations through Civic Action projects. The new roadbed along highway QL-11 is much higher than the old one through the villages, so the company built small foot bridges at each former access point onto the road. Eighty feet of 72" diameter CMP culvert were placed under an access road to improve drainage to adjoining rice paddies during the dry season and 240 manhours along with 180 equipment hours were spent clearing proposed farm land for a local village.

(7) The end of the report period saw the preparations for base camp relocation swing into full gear. The new location is divided into a cantonment area and an industrial area. The preliminary site preparation, barrier wire, guard towers and protective berm were nearly complete for

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the cantonment area as the period drew to a close. Work on the industrial area was about to begin.

d. Company C

(1) During the report period, the company was engaged in the active upgrading of highway QL-11 from bridge 22 to bridge 31.2 (a distance of 7 km); the continuous maintenance of highway QL-11 from bridge 16 to bridge 41 (a distance of 32 km); continuous maintenance to the "Good View" Pass (12 km of highway QL-11 between Song Pha, BP482086 and Don Duong, BP400103) due to damages caused by the monsoon rains during the previous report period; Bailey Bridge construction on highway QL-1; repair of the Song Mao airfield, the upgrade of a 1.6 km ammunition area access road in Cam Ranh Bay; miscellaneous maintenance and support tasks; and improvements of base camp perimeter defenses, billet blast walls and protective bunkers.

(2) A total amount of 64,066 cy of unsuitable soil was replaced during highway QL-11 upgrade operations with 92,200 cy of fill. The vertical construction platoons built six separate drainage structures consisting of a total of 8 CMP tubes totaling 365 feet in length. Two of these were destroyed by enemy demolitions and were located in the Company B AOR. Total rainfall during the period was 2.75 inches (2.50 inches fell during November).

(3) Maintenance of highway QL-11 involved the filling of pot-holes, the daily cleaning of ditches and shoulder stabilization, Culvert clean-out and subbase repairs also required noticeable effort.

(4) During the report period, significant effort was expended on road maintenance of the Pass. This work consisted of clearing drainage ditches, repairing the roadway, cleaning culverts, and reconstructing headwalls. Road widening operations were begun and trees overhanging the roadway were removed concurrently with the removal of road obstacles. This work required the use of 3000 lbs of dynamite and 2770 feet of detonating cord.

(5) That portion of highway QL-1 between the Ninh Thuan/Binh Thuan Province border and a point 12 km west of the town of Song Mao lies within the AOR of the 589th Engineer Battalion (Const). Combat units with their track vehicles operate in this area for the protection of allied forces and must be able to move quickly anywhere along the road. Movement was restricted due to deteriorated French-built bridges located at strategic points which had become structurally inadequate to support the heavy tanks and other armored vehicles. Therefore, Company C was tasked to emplace bypasses consisting of Bailey Bridges at two locations: (a) 100 ft triple-single Bailey Bridge was erected at bridge 25 On QL-1 and (b) an 80 ft double-single Bailey Bridge was erected at bridge 27. The project required

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7,040 manhours and 4,250 equipment hours to complete. The bypass at bridge 25 collapsed on 10 November 1969 as a result of overloading and was replaced by a 160 ft double Bailey Bridge at a cost of 1500 manhours and 1120 equipment hours.

(6) Several large depressions developed in the Song Mao airfield due to subgrade failures. Large sections of the M8A1 matting which covers the airfield had to be removed so the underlying soft spots could be excavated and replaced with higher grade material. The compacted fill was then sealed with an asphaltic product and new matting was welded into place. The job required 1380 manhours and 480 equipment hours to complete.

(7) The company was tasked to install a drainage system for a 1.6 km access road built through a series of sand dunes in the Cam Ranh Bay area. Minor repairs to the sand-cement road were also required prior to application of the asphaltic concrete. To compensate for the shifting sand, half pieces of metal culvert were imbedded in the sand alongside the road where ditches would normally have been made with a grader. Sand-cement retaining walls were built to keep the water on the road to prevent premature shoulder erosion as a result of the unrestricted flow of water from the road. The water is shunted into a turn-out ditch and directed safely away from the road. The project required 1500 manhours and 1080 equipment hours to complete.

(8) A miscellaneous project was the redecking of a 70 ft French Eiffel bridge on highway QL-1. The docking and treadway had deteriorated to the point of being hazardous to cross with wheeled vehicles and its rehabilitation was accomplished during the same time frame as the Bailey Bridge erections. The retrieval of disabled civilian vehicles was also a continuing requirement throughout the period. Occasional bulldozer and grader work for the local nationals helped to improve Vietnamese/American relations.

(9) Base camp perimeter fences were improved, deteriorated sand bag revetments were replaced with sand-filled 55 gallon drums and heavy vegetation was cleared from around the area.

e. Company D

(1) During the reporting period the primary effort of the unit was placed on the upgrading of highway QL-1. During November, the earth work effort was moved from that section of highway QL-1 south of Phu Quy (BN742748) to the section north of Phu Quy. The vertical platoon remained in the south and completed two culverts (59.2 and 61.1) and then, they too, moved their effort north of Phu Quy where they completed one 30" culvert extension and have initiated work on others.

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(2) A new type of construction was utilized by the unit while working north when the new road centerline extended into the flooded rice paddies. A sound foundation for the select fill was obtained by placing river sand into the paddies. The sand was placed up to the existing road level, a depth of approximately 41 inches, and the select fill placed on that "sand blanket." A total of 14,982 cy of sand was used. Very few minor failures in the surface have been noted as of this date and these will be repaired without extensive excavation.

(3) Unit training was minimal except for on-the-job training (OJT) and cross training of equipment operators. Due to exceedingly good construction weather, all time was devoted to construction and maintenance of equipment. Sundays were devoted to required training when applicable.

(4) During the month of January the company received 30 enlisted trainees from the 63d ARVN Engineer Battalion to be trained via OJT on various pieces of equipment and as mechanics. Although the language barrier slowed the training process, trainees were responding and becoming efficient operators at the close of the report period.

(5) The major problem confronting the construction effort during the period was the lack of borrow pit material located within an economical haul distance of the fill site. Road scrapers and dump trucks were making a 17 km round trip taking an average of one hour to complete. A new borrow pit was located which made possible a 35 minute trip to the north end of the units area of responsibility.

(6) The augmentation of 30 local civilian employees to the construction effort greatly reduced the personnel problem. Also, the input of trained US personnel by normal replacement put the company in a better personnel position than at any time during the previous two report periods. The concept of the Vietnamese platoon was mentioned in the previous report. The effectiveness of that program continued throughout the present reporting period.

f. 513th Engineer Company (Dump Truck)

(1) The company continued its mission of supporting road construction operations during the report period. The Second Platoon, which had been attached to the 864th Engineer Battalion (Const) in Nha Trang for 30 days, rejoined the company in Phan Rang on 2 December 1969.

(2) The company logged 34,797,000 ton-miles hauling rock products, sand, asphaltic concrete and fixed bridging in support of the Lines of Communication (LOC) program. The organizational maintenance deadline rate averaged 3 per cent during the entire report period and support maintenance services were outstanding. There were only 3 minor accidents during the report period.

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g. Personnel

(1) LTC Donald A. Ramsay remained as Battalion Commander throughout the reporting period. CPT Frederick Howard was succeeded by CPT David Berkman as Commander of the 687th Engineer Company (Land Clearing) on 9 November 1969. Command of D Company changed on 25 November 1969 from CPT James M. Lewis, who rotated to CONUS, to CPT Frank A. Robertson, who had been battalion EMO. CPT Richard A. Peace assumed command of the 513th Engineer Company (DT) on 6 January 1970, succeeding CPT Alan J. Arlikian, who departed to CONUS. CPT Byron L. Smith, Pipeline Engineer of the S-3 section, assumed command of C Company on 16 January 1970, replacing CPT Samuel L. Lamey who was reassigned as the advisor to the ARVN 61st Engineer Battalion.

(2) Major staff changes included the assignment of 1LT Charles W. Schueddig as S-4 officer, replacing 1LT Anthony C. Muse, and CPT Francis J. Lowe succeeding CPT John R. Logue as Adjutant. CPT Mark L. Weiss became the S-4 officer on 27 January 1970, replacing 1LT Schueddig. On 30 January 1970, MAJ Philip J. Galanti Jr. became the S-3 officer, replacing MAJ Romayne E. Schroder who became Battalion Executive Officer. MAJ Vincent J. Parmesano, the former Executive Officer, was transferred to 35th Engineer Group Headquarters.

(3) There were a total of 10 officer gains for the battalion, and 12 officers departed the battalion during the period. There were 2 Warrant Officer gains, which balanced the losses for the reporting period.

(4) During the reporting period the assigned strength of the battalion plus attached units went from 108% at the start of the period to 95% at the close. This loss was attributed to the large number of personnel who rotated without being replaced and the gain of 54 slots to the NTCE. This gain of 54 placed the unit back at type B TCE authorization. Through an active extension program in which the battalion encouraged highly qualified individuals to extend their foreign service tours, 32 personnel extended for 6 months and 26 extended for short terms (less than 90 days).

(5) The most critical shortages of required MOS's continued to be 51H40 (Construction Foreman), 62M40 (Construction Machine Supervisor), 76Y40 (Unit Supply Specialist), and 62G20 (Quarryman).

(6) Units were required to place additional emphasis on the OJT program since the MOS's of replacement often did not match those of the losses.

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h. Religious Activities

(1) During the report period, attendance at religious services for personnel of the 589th Engineer Battalion (Const) increased over the previous reporting period - 114 opportunities for worship showed 2639 men in the battalion attending.

(2) A weekly Catholic mass was conducted in the battalion chapel by a Catholic Chaplain from Phan Rang Air Base. Catholic coverage for the battalion's outlying units was scheduled weekly and increased opportunities for worship was greatly appreciated by the troops. Jewish services were conducted weekly at the Phan Rang Air Base by a lay leader of the Jewish faith. Other denominational services which personnel of the 589th were encouraged to attend were held at the Phan Rang Air Base Chapel.

(3) The character guidance program received continued emphasis by the command. The health, welfare, and morale of the men of the command continued at a high level.

(4) During this period, the battalion chapel was relocated and dedicated. A chapel lounge was also established.

i. Intelligence and Security

(1) Enemy incidents against the 589th Engineer Battalion (Const) occurred primarily in the Company B and C areas of responsibility. Activity in the Company D area decreased from that of last period. Overall battalion production was not significantly affected due to enemy action during the report period.

(2) Enemy activity during the report period ranged from the emplacement of dummy mines to the ambushing of work party convoys.

(a) Culvert 15.1 (two 48 inch culverts on highway QL-11) was destroyed during the night of 2 November 1969 by enemy demolitions. Immediate temporary repairs kept the traffic flowing while preparations for permanent repairs commenced.

(b) Phan Rang Air Base (where the battalion base camp is located) received 3 rounds of 107mm rockets at 0815 hours 4 November 1969. There was no damage or injury to members of this command.

(c) An enemy squad attacked the ARVN security element guarding bridge 27, highway QL-11, at 2230 hours 3 November 1969 with B-40 rockets and small arms fire. The bridge was not damaged.

(d) Company B vertical construction platoon working on bridge 9, QL-11, received one 40mm round believed to have been fired from

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a passing Vietnamese civilian truck. This action occurred on 8 November 1969. There was no damage to equipment or injury to personnel.

(e) Friendly Vietnamese civilian discovered anti-personnel mine, 0730 hours, 8 November 1969, on highway QL-11, site of bridge 9. He informed Company B work party and mine was blown in place by Air Force Explosive Ordnance Disposal (EOD) personnel.

(f) Company B work crew discovered four mounds of earth on highway QL-11 between bridges 10 and 11 at 0820 hours, 10 November 1969. Three dummy mines were located and one "live" anti-personnel mine was blown in place by EOD personnel.

(g) One 40mm round was received near bridge 9 on highway QL-11 at 1630 hours, 14 November 1969. It had no effect.

(h) Phan Rang Air Base received three 107mm rockets at 0940 hours, 14 November 1969. There was no damage or injury to personnel of this command.

(i) Phan Rang Air Base received one 107mm rocket round at 0500 hours, 17 November 1969 and two more on 20 November 1969. Neither attack inflicted damage or casualties on members of this command.

(j) Company D work party was ambushed at 1745 hours, 21 November 1969, 5 kilometers south of their base camp on highway QL-1. The enemy fired 13 rounds of B-40 rockets and miscellaneous small arms fire. Return fire by Company D personnel was augmented by gunships and artillery support. Casualties and equipment damage were light.

(k) Eleven 82mm mortar rounds fell short of the Company D base camp perimeter at Phu Quy on 22 November 1969 with negative results.

(l) The last vehicle of a Company C convoy was hit by a Chinese Communist manufactured claymore mine on highway QL-11 near bridge 22, 3 December 1969. Casualties and equipment damage were light.

(m) Enemy demolitions destroyed one tube of 24" culvert and deeply rutted a section of roadway on QL-11 between Song Pha and Don Duing sometime during the night of 13 December 1969.

(n) Six 82mm mortar rounds fell short of Company C base camp perimeter at Song Pha on 4 January 1970 with negative results.

(o) Company B work party received three rounds of enemy small arms fire, 0830 hours, 11 January 1970, while travelling on the beach access road, the beginning of which is 4 kilometers east of the Phan Rang Air Base. There were no casualties.

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(p) Enemy small arms fire, which was received by a 513th Engineer Company (DT) convoy near bridge 9 on highway QL-11, 12 January 1970, caused no harm.

(q) Enemy small arms and automatic weapons fire was received by Company C dump truck convoy during an ambush on highway QL-11, 16 January 1970. Casualties and equipment damage was light.

(r) Company D 5 ton dump truck detonated a pressure activated mine on highway QL-1, 2 kilometers north of their base camp, 16 January 1970. The explosive element was a 40mm round. There were no casualties. The truck was damaged moderately.

(s) The Phan Rang Air Base received two 107mm rocket rounds on the flight line, 25 January 1970. The rockets caused no damage or casualties to this command.

(t) A Company D ten ton tractor/trailer detonated a concealed mine beneath the surface of the road two miles off QL-1, near a borrow pit, on 30 January 1970. There were no casualties and moderate damage to the truck resulted.

(u) An electrically-rigged anti-personnel mine was detonated near a borrow pit on highway QL-1 by a dismounted Company D truck driver, 31 January 1970. He received serious injuries.

j. Operations and Training

(1) Battalion effort continued to be concentrated on the LOC program during the period. A total of 80,679 cy fill was hauled and compacted on QL-1 and 194,288 cy were used for QL-11. Base course placed and compacted amounted to 33,474 cy. Four drainage structures were completed: two medium sized culverts on highway QL-1 consisting of 378 ft of 48" and 60" culvert; two 80 ft, two-span permanent bridges on highway QL-11 (7,335 manhours spent this quarter in completing). The highlight of the period was the turnover of 26 km of completed highway QL-11 to the Vietnamese government. All paving during the period amounted to 15.7 km, double lane, utilizing 17,363 tons of asphaltic concrete, a figure which exceeds that of the previous period by 5.4 km, double lane.

(2) The detrimental effect of the personnel cutback during the previous period was lessened by the addition of local national permanent hire personnel to the battalion vertical work capability. They were organized into platoons as described in the previous report (under Personnel) so their knowledge and leadership potential could be fully applied toward mission accomplishment. This arrangement produced outstanding results by capitalizing on a previously untapped reservoir of available skills which

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enabled the local people to share in the development of their country, while helping complete the military mission at the same time. The success of this unique operation has been explained to other engineer battalions which might fruitfully utilize this concept.

(3) The battalion received 31 ARVN soldiers from the 63rd ARVN Engineer Battalion for the purpose of training them on engineer equipment. They arrived in early January and were to remain for an eight week period. All 31 were initially sent to one company. They were to be trained primarily on dozers, graders, front loaders, compaction equipment, cranes, air compressors, cement mixers and generators. They were also trained in welding and 290 scraper operation when all students could not be accommodated on scheduled equipment. The battalion and group commanders of the 63rd ARVN Engineer Battalion and the 6th ARVN Engineer Group were favorably impressed with the training during their visit. The program was moving along satisfactorily at the close of the period and was expected to produce qualified operators.

k. Maintenance

(1) Operator maintenance improved during the report period, however, the lack of forceful supervision of preventive maintenance continued as a primary problem.

(2) The MCA-LOC equipment had its expected favorable impact upon construction operations. The DYNALECTRON contract mechanics have been effective in making repairs, however, the MCA logistics system (separate from the Army system) has not been responsive to the needs of the equipment. A Hyster pneumatic roller was deadlined 46 days for the impeller used in the sprinkler system. A 12 cy dump truck has been deadlined for 63 days for a myriad of small items i.e. solenoid, regulator, warning buzzer, circuit breaker, relay, etc. and the Raygo vibratory compactor has been continuously deadlined 108 days for a piston motor in the transmission. These are high production items whose absence restricts the full realization of support equipment capability and significantly lengthens project completion time.

l. Medical Activities

(1) The medical section provided primary medical support for elements of HHC, A, B, C, and D Companies, the 513th Engineer Company (DT) and the 73rd Engineer Company (CS) during this period. The section also provided medical care for units in D/36th Signal Battalion and HHC 2/1 Armored Cavalry Regiment and 5/27th Artillery Battalion.

(2) The total number of outpatients seen during the period was 1845; of these only 93 were admitted to the overnight ward or to the

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hospital. The problem caused by a shortage of medics during most of the report period was alleviated toward the end of the period with the arrival of two replacements.

(3) The Aid Station held daily sick call at which an average of 20 patients were seen.

m. Communications

(1) The communications section continued to provide advice and assistance to subordinate units and insured uninterrupted communications capability throughout the battalion AOC during the report period.

(2) Assigned personnel were cross-trained in radio teletypewriter operation in anticipation of not receiving qualified replacements in that MOS.

(3) Deteriorated telephone poles with abandoned communication wires which presented a hazard to low flying helicopters were removed from the battalion base camp area.

(4) Due to the shortage of personnel with communications skills, it was decided to remove the tactical SB-86 switchboard which served 25 subscribers and handled an average of 200 calls per 24 hour period. Class "A" and "C" lines were available through the air base telephone exchange system to all battalion elements located on the base. The smaller tactical switchboard, the SB-22, was installed to maintain interconnecting lines with the Phan Rang base operator, CRUSADER switch (direct line to 35th Engineer Group (Const), Cam Ranh Bay), and the Battalion Commander. The reduced number of subscribers allowed one operator to efficiently handle both the radio and the switchboard.

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2. SECTION 2, LESSONS LEARNED: Commander's Observations, Evaluations
and Recommendations

a. Personnel

(1) Utilization of Vietnamese Personnel

(a) OBSERVATION: Personnel cutback below Type B TOE authorizations necessitated augmentation by local nationals.

(b) EVALUATION: Local national "permanent hire" employees were organized into construction platoons. Local national supervisors worked hand-in-hand with their American counterparts. Local national supervisors, readily available in large metropolitan areas, were found to have better control over the Vietnamese workers than inexperienced US personnel. American counterparts were slowly phased out as the Vietnamese attained a satisfactory level of proficiency. This organization made maximum use of heretofore untapped skills, knowledge and leadership abilities, and averted a decrease in production due to a lack of US personnel.

(c) RECOMMENDATION: That local nationals be organized into structured units when large numbers are utilized to perform construction work. That local national supervisors be procured and utilized whenever possible.

b. Intelligence: None

c. Operations

(1) Road Repair and Upgrading

(a) OBSERVATION: Widening a road to new standards can virtually stop the flow of traffic while construction is proceeding.

(b) EVALUATION: Road widening is essential to meet the criteria of construction for highways specified under the LOC program in RVN. While these roads are being widened, the mass of equipment and volume of earthwork necessary to add on the extension often necessitate closing the road. If the extension is added on only one side, however, almost the entire original roadway may still be used to pass traffic and avoid congestion.

(c) RECOMMENDATION: That when widening a road becomes necessary, adding on to one side only be considered as a method to insure minimum interference with essential traffic.

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31 January 1970

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(2) Culvert Extensions

(a) OBSERVATION: Widening a road often requires that drainage structures be replaced along the roadway.

(b) EVALUATION: In order to insure the correct flow of water through a drainage structure, that structure must be kept essentially unchanged as the roadway is widened. Removal of the old structure and replacement with a newer, longer structure to meet width requirements would be necessary. If the structure is sound, its removal would constitute a waste of time, materials and equipment. In such a case, with a sound structure, the extension of that structure would appear to be a time-saving device for the vertical construction effort required.

(c) RECOMMENDATION: That extending existing drainage structures to compensate for widening a road be considered as a time-saving device if the structure is sound and meets all other criteria for drainage.

(3) Omission of Culvert Headwalls

(a) OBSERVATION: In irrigated paddy-type land, where many drainage structures are merely equalizers, headwalls are not necessary.

(b) EVALUATION: In paddy areas, there is not normally a set direction of flow, nor is there constant flow in many drainage structures. In those cases, the time consuming construction of headwalls may be eliminated, as they are not necessary either to canalize flow or protect the culvert sides from erosion. By the elimination of these headwalls a great deal of time and effort may be saved. If there is an obvious flow, then headwalls must be constructed.

(c) RECOMMENDATION: That in locations where there is no obvious direction of flow, and a culvert acts basically as an "equalizer", the headwalls are eliminated from the structure.

d. Organization: None

e. Training: None

f. Logistics

(1) Lack of Materials Handling Equipment

(a) OBSERVATION: A construction battalion engaged in full scale road construction throughout its AOR requires more fork lifts for handling construction materials.

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(b) EVALUATION: The 589th Engineer Battalion (Const), by its location and the dispersion of its companies, often acts as a transshipping point for materials. Base camp, fire base and miscellaneous support construction require the handling of lumber, cement, fuel drums and palletized items, often by isolated company sized units. Our rock quarries and asphalt plants require the handling of drill steels, conex containers, asphalt drums, and heavy repair parts for the industrial machinery. The S-4 materials storage yard requires the frequent moving of steel beams and plates, the authorized stockage list (ASL) storage yard needs a fork lift to insure that a complete accurate stockage and storage system is maintained, and the Company maintenance facility requires a fork lift for its supplies and machine components movement.

(c) RECOMMENDATION: That 1 each 10,000 lb fork lift (with operator) be authorized each company in addition to the present authorization of HHC - 2 each 10,000 lb fork lifts and Company A - 1 each 6000 lb fork lift.

(2) Low Density Critical Item Repair Parts

(a) OBSERVATION: Nonstandard items deadlined for lack of repair parts remain so for much longer periods of time than standard items.

(b) EVALUATION: The 20 ton Euclid is the only item of its type used to haul blast rock in the quarry. It is critical to the accomplishment of the mission of a construction battalion in the T/O, but repair parts are not stocked in the quantity necessary to insure availability when needed, often as a result of the low density of these items within the system. A sliding scale that would provide an increased stockage level of parts for low density critical items would help insure that the parts were on hand when needed.

(c) RECOMMENDATION: That repair parts stockage for high production low density critical equipment be increased to provide for quicker response in the event of necessary repair parts replacement.

g. Communications: None

h. Materiel: None

i. Other

(1) Increasing the Life of Dozer End Bits

(a) OBSERVATION: Dozer end bits experienced high mortality rates while working in rock.

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(b) EVALUATION: Welding old end bits onto the face of the new bits with the cutting edge of the old bits one inch lower than the new bits increased the new bits' life four times.

(c) RECOMMENDATION: That the above method of end bit life extension be utilized when excessive wear requires replacement.

(2) Job Site and Convoy Security

(a) OBSERVATION: Due to the lack of armored vehicles in a construction unit for job site and convoy security, a critical loss of cargo haul capability is created because of the conversion of 2½ ton trucks into gun-trucks.

(b) EVALUATION: There is a very necessary requirement on construction sites, convoys through hostile areas, and emergency night operations for armored vehicles with automatic weapons. Since regular TOE vehicles, i.e. 2½ ton and 5 ton dump trucks, are "sand bagged" and "steel plated" to satisfy this requirement there is a critical loss of cargo haul capability that could be directed to the primary mission of this unit. Also the "hardening" of a 2½ ton for the purpose of serving as an armored vehicle is detrimental to the expected life of the vehicle because of the added strain on the drive train, frame, springs and engine.

(c) RECOMMENDATION: That two armored vehicles with fifty caliber machineguns and crews to man them be authorized for each construction company operating in a hostile area. The V-100 armored car is an example of the type of armored car that would fill the above requirement.

1 Incl
as

Donald A. Ramsay
DONALD A. RAMSAY
LTC, GS
Commanding

EMA-09 (31 January 1970) 1st Ind

SUBJECT: Operational Report - Lessons Learned of the 589th Engineer
Battalion (Construction), Period Ending 31 January 1970,
RGS GSWOR-65 (R2)

DA, Headquarters, 35th Engineer Group (Construction), APO 96312, 24 February 1970

TO: Commanding General, 18th Engineer Brigade, APO 96377

This Headquarters has reviewed the Operational Report - Lessons Learned for the quarterly period ending 31 January 1970 from the 589th Engineer Battalion (Construction) and concurs with the comments and observations of the commander.


HARRY A. GRIFFITH
COL, GE
Commanding

AVBC-CG (31 Jan 70) 2nd Ind

SUBJECT: Operational Report - Lessons Learned, 589th Engineer Battalion
(Construction), Period Ending 31 Jan 70, RCS CSFOR-65 (R2)

DA, HEADQUARTERS, 18TH ENGINEER BRIGADE, APO 96377 2 5 MAR 1970

TO: Commanding General, U.S. Army Vietnam, ATTN: AVHGC-DST, APO 96375

1. This Headquarters has reviewed the Operational Report - Lessons Learned for the 589th Engineer Battalion (Construction), as indorsed by the 35th Engineer Group (Construction). The report is considered to be an accurate account of the Battalion's activities during the reporting period.


2. This Headquarters concurs with the observations and recommendations of the Battalion and Group Commanders, with the following comments added:

a. Reference Sec. 1, paragraph K(2). There is little that can be done by this Headquarters to improve the overall responsiveness of the MCA supply system. Parts requirements of critical items are reported in a Critical Item Spot Report. Upon receipt of such a report, the Brigade S-4 attempts to expedite shipment of critical item parts through direct contact with the Dynallectron home office in Ft. Worth. These parts then get priority of ordering and shipment. The equipment mentioned in the referenced paragraph is not considered critical.

b. Reference Sec. 2, item f(1). Non-concur. Additional fork lifts might be useful under certain circumstances. However, they are considered to be non-essential to the engineer mission, as bucket loaders or 20 ton RT cranes can generally meet all loading-unloading requirements of engineer companies. Moreover, the value of this additional equipment is not considered to be worth the additional operator and maintenance requirements that it would entail.

c. Reference Sec. 2, item f(2). Concur. The battalion stock of repair parts can be increased under the provisions of 1st Log Reg 700-23, paragraph 5f. The Battalion Commander has been so advised.

d. Reference Sec. 2, item i(2). Non-concur. Although the V-100 armored car would be very useful to certain engineer units for security enroute to the job site and at the job site, it is not required by all engineer battalions. In the absence of a general requirement, an item can not be included as part of the equipment authorization. The V-100 armored car is currently authorized only for military police units. It is in very short supply in Vietnam. Furthermore, engineer units do not have the operators or capability to maintain these vehicles.


J.W. MORRIS
Brigadier General, USA
Commanding

CF:

1 - CG, 35th Engr Gp
1 - CG, 589th Engr Bn

AVHGC-DST (31 Jan 70) 3d Ind
SUBJECT: Operational Report - Lessons Learned, 589th Engineer Battalion
(Construction), Period Ending 31 January 1970, RCS CSFOR-65(R2)

Headquarters, United States Army, Vietnam, APO San Francisco 96375 10 APR 1970

TO: Commander in Chief, United States Army, Pacific, ATTN: GPCP-DT,
APO 96558

1. This headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 31 January 1970 from headquarters, 589th Engineer Battalion (Construction) and concurs with the comments of indorsing headquarters.
2. Reference item concerning "MCA/LOS Equipment", page 12, paragraph k(2), nonconcur. Nonconcur with the statement: "...the MCA logistics system (separate from the Army system) has not been responsive to the needs of the equipment." It is recognized that supply of repair parts is an important element in the maintenance of this commercial construction equipment, as it is with standard Army materiel. The supply of repair parts by the contractor is a provision of the contract. Results of the contractor's supply procedures and system compare favorably with the military supply system for providing repair parts for nonstandard equipment in troop units. Both the contractor and this headquarters are striving to reduce maintenance and associated repair parts supply problems. Although hardcore problems exist on some items of equipment, the deadline rates are generally parallel to the TOL rates.

FOR THE COMMANDER:



D. J. WINTER
1LT, AGC

Assistant Adjutant General

Cy furn:
18th Engr Bde
589th Engr Bn

GPOP-DT (31 Jan 70) 4th Ind

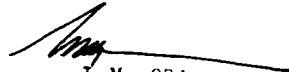
SUBJECT: Operational Report of HQ, 589th Engineer Battalion (Construction)
for Period Ending 31 January 1970, RCS CSFOR-65 (R2)

HQ, US Army, Pacific, APO San Francisco 96558 22 APR 70

TO: Assistant Chief of Staff for Force Development, Department of the
Army, Washington, D. C. 20310

This headquarters concurs in subject report as indorsed.

FOR THE COMMANDER IN CHIEF:


L.M. OZANA
CPT, AGC
Asst AG

EG:CBF-CO

31 January 1970

SUBJECT: Operational Report - Lessons Learned, 589th Engineer Battalion
(Construction), Period Ending 31 January 1970, RCS CSFOR-65(R2)

ORGANIZATION

The following units were either assigned or attached as indicated to the 589th Engineer Battalion (Const) during the report period.

- a. Headquarters and Headquarters Company
- b. Company A
- c. Company B
- d. Company C
- e. Company D
- f. *513th Engineer Company (Dump Truck) (One platoon was detached elsewhere for temporary duty for six weeks during the report period).
- g. *Quarry Platoon, 73rd Engineer Company (Construction Support) (Assigned on 9 November 1969)
- h. *687th Engineer Company (Land Clearing) (Detached on 25 November 1969)

* These were the only attached units. The rest are assigned units.

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